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RESEARCH ARTICLE

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Notulae to the Italian flora of algae, bryophytes, fungi and lichens: 10

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Abstract

In this contribution, new data concerning red algae, bryophytes, fungi and lichens of the Italian flora are presented. It includes new records and confirmations for the algal genus *Thorea*, for the bryophyte genera *Ephemerum*, *Hedwigia*, *Pogonatum*, *Riccia*, *Sphagnum*, and *Tortella*, the fungal genera *Pileolaria* and *Sporisorium*, and the lichen genera *Bacidia*, *Cerothallia*, *Chaenotheca*, *Cladonia*, *Halecania*, *Lecanora*, *Phylloblastia*, *Physcia*, *Protoparmelia*, *Pycnora*, *Segestria*, and *Sphaerophorus*.

Keywords

Ascomycota, Basidiomycota, Bryidae, Marchantiidae, Rhodophyta

How to contribute

The text of the records should be submitted electronically to: Cecilia Totti (c.totti@univpm.it) for algae, Marta Puglisi (mpuglisi@unict.it) for bryophytes, Alfredo Vizzini (alfredo.vizzini@unito.it) for fungi, Sonia Ravera (sonia.ravera@unipa.it) for lichens.

Floristic records

ALGAE

Thorea hispida (Thore) Desvaux (Thoreaceae)

+ **PIE**: Tanaro River, Castello di Annone (Asti), shallow water on river side, moderate flow, (UTM WGS84: 32T 445180.4969789), 108 m, 19 September 2013, *V. Pizzo, S. Vazzola*, conf. *R. Bolpagni*; Bormida di Millesimo River, Cortemilia (Cuneo), shallow water, moderate flow (UTM WGS84: 32T 431783.4932315), 250 m, 14 August 2014, *E. Gastaldi, V. Pizzo, S. Vazzola*; Marcova torrent, Motta De' Conti (Vercelli), shallow

water, moderate flow (UTM WGS84: 32T 463903.5002336), 100 m, 16 July 2015, *V. Pizzo V., S. Vazzola*; Tanaro River, Castello di Annone (Asti), shallow water on river side, moderate flow, (UTM WGS84: 32T 445180.4969789), 108 m, 13 July 2016, *V. Pizzo, S. Vazzola* (Herbarium ARPA Piemonte – Dipartimento territoriale Piemonte sud est); Tanaro River, Felizzano (Alessandria), shallow water on river side, moderate flow (UTM WGS84: 32T 455731.4970930), 95 m, 13 July 2016, *V. Pizzo, S. Vazzola* (Herb. ARPA Piemonte – Dipartimento territoriale Piemonte sud est); Tanaro River, San Martino Alfieri (Asti), shallow waters on river side, moderate flow (UTM WGS84: 32T 431600.4963158), 128 m, 21 July 2016, *V. Pizzo, S. Vazzola* (Herbarium ARPA Piemonte – Dipartimento territoriale Piemonte sud est); Roggia Bona torrent, Caresana (Vercelli), shallow water, moderate flow (UTM WGS84: 32T 461394.5008232), 100 m, 6 October 2016, *V. Pizzo, S. Vazzola*; Sesia River, Motta De' Conti (Vercelli), shallow water on river side, moderate flow (UTM WGS84: 32T 464813.5004710), 100 m, 12 October 2016, *V. Pizzo, S. Vazzola* (Herbarium ARPA Piemonte – Dipartimento territoriale Piemonte sud est); Bormida di Millesimo River, Cortemilia (Cuneo), shallow water, moderate flow (UTM WGS84: 32T 431783.4932315), 250 m, 3 October 2018, *E. Gastaldi*, *V. Pizzo, S. Vazzola*; Tanaro River, Castello di Annone (Asti), shallow water on river side, moderate flow, (UTM WGS84: 32T 445180.4969789), 108 m, 5 August 2019, *V. Pizzo, S. Vazzola*; Tanaro River, San Martino Alfieri (Asti), shallow waters on river side, moderate flow (UTM WGS84: 32T 431600.4963158), 128 m, 5 August 2019, *V. Pizzo, S. Vazzola*; Tanaro River, Felizzano (Alessandria), shallow water on river side, moderate flow (UTM WGS84: 32T 455731.4970930), 95 m, 8 August 2019, *V. Pizzo, S. Vazzola*. – Species new for the flora of Piemonte.

Many new collections of *Thorea hispida* have been made in recent years from Europe: Simić and Pantović (2010), Simić et al. (2014) for Serbia; Vitonytė (2011) for Lithuania; Cărăuş (2012) for Romania; Tomás et al. (2013) for Spain. This is likely the result of the implementation of the Water Framework Directive, that imposed an overall review and updating of knowledge on neglected macroscopic primary producers in freshwater ecosystems, such as red algae (Ceschin et al. 2012, 2013). Despite this renewed interest, this species remains poorly documented, especially regarding its ecological preferences (Vitonytė 2011, García and Aboal 2014). Thoreales are common in tropical and subtropical areas (Sheath and Hambrook 1990, Sheath et al. 1993, Carmona and Necchi 2001) and are considered rare and threatened in Europe (Eloranta et al. 2011). Accordingly, *T. hispida* is included in the Algae Red List in some European countries (Ludwig and Schnittler 1996, Sheliag-Sosonko 1996, Simienska 2006, Simić et al. 2007, Temniskova et al. 2008, Täuscher 2010), and it is still considered a species with a very restricted distribution (García and Aboal 2014 and references therein). In Italy, it was reported for the first time in Lombardia (northern Italy) in the Oglio River, a mid-size and nutrient-rich tributary of the Po River, where a seasonal monitoring study conducted during 2009–2011 revealed that a 40 km stretch hosted three *T. hispida* populations (Bolpagni et al. 2015). *Thorea hispida* is commonly associated to nutrient-rich waters.

S. Vazzola, D. Bouvet, A. Rossi

BRYOPHYTES

Ephemerum recurvifolium (Dicks.) Boulay (Pottiaceae)

+ **TAA**: Municipality of Montagna/Montan (Bolzano/Bozen-Südtirol) (UTM WGS84 32T 677213.5133744), 430 m, 15 May 2019, leg. *S. Stifter, A. Hilpold*, det. *D. Spitale* (Herbarium BOZ). – Species new for the flora of Trentino-Alto Adige.

Ephemerum recurvifolium is a submediterranean-euryatlantic species quite rare in Europe, where it is considered at risk in many countries (Hodgetts and Lockhart 2020) and listed as Near Threatened in the new IUCN European Red List (Hodgetts et al. 2019). In Italy it occurs in five administrative regions, Piemonte, Umbria, Campania, and Sicilia, and was recorded before 1968 in Toscana and Sardegna (Aleffi et al. 2020). In the new locality, *Ephemerum recurvifolium* was found in an apple orchard managed with Integrated Farming practices. Associated species were *Amblystegium serpens* (Hedw.) Schimp., *Kindbergia praelonga* (Hedw.) Ochyra, *Plagiomnium cuspidatum* (Hedw.) T.J.Kop., and *Brachythecium campestre* (Müll.Hal.) Schimp. In South Tyrol, this species is not listed in the new bryophyte database (FloraFaunaSüdtirol 2014). Like the other members of the genus it can be easily overlooked because of its small size. It is distinguished from the much more common *Ephemerum serratum* (Hedw.) Hampe and *Ephemerum minutissimum* Lindb. for its more strongly toothed leaves, showing no or very faint midrib. On suitable sites, this species grows on bare, moist soils often on calcareous clay in arable fields (Dierßen 2001), or on surfaces within grassy patches, which probably protect the persistent protonema from damage (Novotný 1986).

D. Spitale, S. Stifter, A. Hilpold

Hedwigia emodica Hampe ex Müll.Hal. (Hedwigiaceae)

+ **LIG**: Frisolino, Ne (Genova), path to the Miniera di Molinello, on red jasper (UTM WGS84: 32T 536605.4910320), 248 m, 5 January 2015, leg. *G. Barberis*, det. *G. Barberis, D. Dagnino, C. Turcato* (GE B180). – Species confirmed for the flora of Liguria.

Hedwigia emodica was reported for Italy by Aleffi et al. (2008) as *Hedwigia ciliata* (Hedw.) P.Beauv. var. *leucophaea* Bruch. & Schimp. for Piemonte, Trentino-Alto Adige, and Sardegna and, with old reports, for Val d'Aosta, Lombardia, Liguria, Toscana, Calabria, and Sicilia. Later, after a revision of specimens kept in the herbaria of Firenze (FI) and Pisa (PI), this species was reported also for Veneto, Emilia-Romagna, and Umbria (Puglisi et al. 2013). In particular, *H. emodica* has not been found in Liguria since the second half of the 19th century, when it was indicated for "apennino Genuensis" (De Notaris 1869) and for M. Penna (Fleischer 1893). It is a suboceanic boreo-temperate species, quite rare in the Mediterranean region, where it occurs in some countries as a single record (Ros et al. 2013).

G. Barberis, D. Dagnino, C. Turcato

Pogonatum aloides (Hedw.) P.Beauv. (Polytrichaceae)

+ **LIG**: Passo Cento Croci, Varese Ligure (La Spezia), mixed deciduous forest dominated by beech (UTM WGS84: 32T 549632.4918834), 1061 m, 7 October 2018, leg. *S. Peccenini*, det. *D. Dagnino, C. Turcato* (GE B167); Ronco Scrivia (Genova), along the "Cascinetta-Tegli" municipal road, coppice wood dominated by chestnut (UTM WGS84: 32T 493268.4937707), 475 m, 7 October 2018, leg. *D. Dagnino*, det. *D. Dagnino, C. Turcato* (GE B168). – Species confirmed for the flora of Liguria.

Pogonatum aloides occurs in most of the Italian regions (Aleffi et al. 2020) and Mediterranean countries (Ros et al. 2013), growing in a wide range of shady environments, from the basal to the alpine belt (Cortini Pedrotti 2001). Several records from the end of the 19th century suggest that this species was common in Liguria (Piccone 1863, Fitzgerald and Bottini 1881, Fleischer 1893), but it was no longer recorded for this region (Aleffi et al. 2020).

D. Dagnino, L. Minuto, C. Turcato

Riccia lamellosa Raddi (Ricciaceae)

+ **PUG**: Contrada Samia, Torricella (Taranto), on dry soil, (UTM WGS 84 33T 712611.4466222), 25 m, 30 January 2020, *S. Gianfreda* (Herbarium Gianfreda). – Species new for the flora of Puglia.

Riccia lamellosa was found in a small olive tree grove, two kilometres from the Ionian Sea; the soil was not plowed and was covered by a large amount of mosses. The specimens are characterized by light green rosettes with lobes 2–3 mm wide, lateral wings narrow, hardly distinct, nearly horizontal in old parts; the spores are dark brown, 90–100(110) μm in diameter with wings about 5 μm wide. In Europe the species is widespread in the southern and Mediterranean countries (Hodgetts and Lockhart 2020); in Italy the only Regions where it was found are Trentino-Alto Adige, Toscana, Campania, Sardegna, and Sicilia (Aleffi et al. 2020).

S. Gianfreda, C. Matino

Sphagnum molle Sull. (Sphagnaceae)

+ **FVG**: Malga Plotta, Carnic Alps, Paluzza (Udine), in a small bog next to the forest road which leads from the Marinelli Refuge to the Pass of Monte Croce Carnico (UTM WGS84: 33T 339914.5162098), 1847 m, 12 July 2020, *F. Sguazzin, A. Boemo* (Bryophytorum Herbarium F. Sguazzin). – Species confirmed for the flora of Friuli-Venezia Giulia.

Sphagnum molle is a suboaceanic-temperate species; it is mostly distributed in northern and central Europe, where it is considered at risk of extinction in many coutries (Hodgetts and Lockhart 2020). It is known in Italy, with reports published after 1950, for Piemonte, Veneto, and Trentino-Alto Adige and, with older records,

for Lombardia and Friuli-Venezia Giulia (Aleffi et al. 2008, 2020). As regards Friuli-Venezia Giulia (Sguazzin 2011), the only finding refers to Carnic Alps, and dates back more than a century (Kern 1908). In Italy, all *Sphagnum* species are threatened with extinction, but are included in the category Data Deficient (DD), because of their insufficient distribution knowledge (Rossi et al. 2013). According to Laine et al. (2018), this species grows in poor fens, along lake shores, wet heath margins, and sand dunes.

F. Sguazzin, A. Boemo

Tortella mediterranea Köckinger, Lüth O.Werner & Ros (Pottiaceae)

+ **ITALIA** (**TOS**): Solco d'Equi, Apuan Alps Regional Park, Fivizzano (Massa Carrara), on sunny and dry (occasionally shaded and humid), vertical to inclined marble rocks at the edge of the road (UTM WGS84: 32T 593317.4890377), 396 m, 4 March 2020, *G. Pandeli* (Herb. Pandeli, Herb. Köckinger, GZU); Lizza della Canalonga, Apuan Alps Regional Park, Valle di Vinca, Fivizzano (Massa Carrara), marble and limestone outcrops above the path (UTM WGS84: 32T 591507.4888129), 355 m, 4 March 2020, *G. Pandeli* (SIENA). – Species new for the flora of Italy (Toscana).

Tortella mediterranea is a Mediterranean species recently described from the limestone gorges and crags of the mountainous regions of Mallorca, Greece, Croatia, and Montenegro from areas with a rather high level of annual precipitation. It differs from similar taxa, like *Tortella nitida* (Lindb.) Broth. and *Tortella tortuosa* (Hedw.) Limpr., by a characteristic combination of character-states according to Köckinger et al. (2018), see Suppl. material 1. This species proved locally abundant, but no sporophyte- nor gametangia-bearing material was detected. The populations can be found along the paths of Lizza della Canalonga and Solco d'Equi (Apuan Alps Regional Park), on vertical marble and limestone outcrops occupied by *Homalothecium lutescens* (Hedw.) H.Rob., *Schistidium crassipilum* H.H.Blom, *Ctenidium molluscum* (Hedw.) Mitt., *Tortella nitida* (Lindb.) Broth. var. *irrigata* (H.Winter) R.H.Zander, *Exsertotheca crispa* (Hedw.) S.Olsson, Enroth & D.Quandt, *Trichostomum crispulum* Bruch, and *Tortella squarrosa* (Brid.) Limpr. Because of the frequency of environmentally similar habitats in the area, *T. mediterranea* could be present also in other localities of the Apuan Alps.

G. Pandeli, H. Köckinger, I. Bonini

FUNGI

Pileolaria terebinthi (DC.) Castagne (Pileolariaceae)

+ **BAS**: Castelmezzano (Potenza), hypophyllous on leaves of *Pistacia terebinthus* L. (UTM WGS84: 33T 588716.4486225), 687 m, 20 October 2019, *D. Puntillo* (CLU No. 406). – Species new for the flora of Basilicata.

Considered for a long time a hemi-form (II, III, IV stage) or brachy-form rust species (0, II, III, IV), it is instead an automacrocyclic species (0, I, II, III, IV) as

demonstrated by Abbasi (2018). Its aecial state is not uredinoid, as it was believed. *Pileolaria terebinthi* was cited as new for Italy by Berlese (1896), who recorded it on leaves of *Pistacia vera* L. in the Botanical Garden of University of Camerino, then it was reported from the Botanical Garden of Padova under the name *Uredo terebinthi* DC. (Saccardo 1872), from Veneto, Lombardia, Liguria, Marche, Lazio, Puglia (Trotter 1908, under the name *Uromyces terebinthi* (DC.) G.Winter) and also from Etna in Sicilia (Scalia 1915, under the name *Uromyces terebinthi*).

D. Puntillo

Sporisorium reilianum (J.G.Kühn) Langdon & Full. (Ustilaginaceae)

+ **CAL**: Monasterace Marina near the archaeological excavations of Caulonia (Reggio Calabria), on flowers of *Sorghum halepense* (L.) Pers. (UTM WGS84: 33S 637874.4257027) 4 m, 22 August 2014, *D. Puntillo* (CLU No. 404). – Species new for the flora of Calabria.

Sori are located in *Sorghum* inflorescences, which are usually destroyed and transformed into a grainy-powdery blackish-brown sporal mass. This species also grows also on *Zea mays* L., but it is less common than *Ustilago maydis* (DC.) Corda. *Sporisorium cruentum* (J.Kühn) K.Vánky is very similar, but it stands out with its smooth spores, while in *Sporisorium sorghi* C.G.Ehrenberg ex H.F.Link the sori infect the ovaries. *Sporisorium reilianum* is a subcosmopolitan species. In Italy, Rivolta (1873) reported the species under the name *Ustilago holci-sorghi* Rivolta for Grosseto (Toscana). Ciferri (1938) listed the species under the name *Sphacelotheca holci-sorghi* Cif. for Campania, Emilia-Romagna, Lazio, Lombardia, Sicilia, Trentino-Alto Adige, and Veneto. Recently, Tommasi (2006) reported the species for Friuli Venezia Giulia.

D. Puntillo

LICHENS

Bacidia igniarii (Nyl.) Oxner (Ramalinaceae)

+ **ABR**: Vallone Grascito, south of Sulmona (L'Aquila), on the bark of *Quercus pubescens* Willd. (UTM WGS84: 33T 414031.4652537), 568 m, 7 July 2020, leg. *L. Paoli, Z. Fačkovcová, S. Loppi, A. Vannini*, det. *L. Paoli, Z. Fačkovcová* (SAV). – Species new for the flora of Abruzzo.

This species generally grows on smooth barks, rarely on wood, and it is poorly known (Nimis 2016). The collected specimen has ascospores 3-septate, hyaline, bacilliform (15 × 2.5 μm); epithecium K-, olive green; hymenium mostly colourless; simple paraphyses; hypothecium colourless or very pale brown, K+ reddish.

L. Paoli, Z. Fačkovcová, S. Loppi

Cerothallia luteoalba (Turner) Arup, Frödén & Søchting (Teloschistaceae)

+ **ABR**: Vallone Grascito, south of Sulmona (L'Aquila), on the bark of *Quercus pubescens* Willd. (UTM WGS84: 413992.4652623), 564 m, 7 July 2020, leg. *L. Paoli, Z. Fačkovcová, S. Loppi, A. Vannini*, det. *L. Paoli, Z. Fačkovcová* (SAV). – Species new for the flora of Abruzzo.

This species often prefers dust-covered barks, especially old trunks of deciduous trees, and it was more frequent in the past, perhaps extinct in several parts of the country, especially in northern Italy (Nimis, 2016). The collected specimen is characterized by thallus K- and by the presence of numerous apothecia (diameter < 0.6 mm), with mostly orange disc K+ red, and slightly paler proper margin. The ascospores are 1-septate, polarilocular, hyaline, with thin septum (< 1/4 of the length of ascospores). The specimen was recorded together with *Caloplaca cerina* (Hedw.) Th.Fr. s.lat., *Catillaria nigroclavata* (Nyl.) J.Steiner, *Gyalolechia flavorubescens* (Huds.) Søchting, Frödén & Arup, and *Myriolecis hagenii* (Ach.) Sliwa, Zhao Xin & Lumbsch.

L. Paoli, Z. Fačkovcová, S. Loppi

Chaenotheca stemonea (Ach.) Müll.Arg. (Coniocybaceae)

+ **TOS**: Loc. Lago, Forest of Vallombrosa, Reggello (Firenze), on *Pinus* sp. (UTM WGS84: 32T 706990.4848314), 910 m, 24 June 2020, leg. *C. Cocozza, S. Ravera*, det. *S. Ravera* (Herb. Ravera); Forest of Vallombrosa, Reggello (Firenze), on Silver fir (*Abies alba* Mill.) standing dead tree (UTM WGS84: 32T 707245.4849062), 960 m, 8 October 2020, *S. Ravera* (Herb. Ravera). – Species new for the flora of Toscana.

Chaenotheca stemonea is a pin lichen with poorly developed excipulum, the lower part with a whitish pruina, 0.7–1.6 mm high, characterized by the photobiont (*Stichococcus*), the thin and farinose thallus and the almost globose capitulum. It is a cool-temperate to boreal-montane, circumpolar species, rare in the Italian montane belt, usually found on bark and wood of conifers, more rarely on deciduous trees in forested habitats (Nimis 2016). This specimen grows on the trunk of a single old tree, covering it completely up to approximately 2 m above the ground, along the course of a stream. *Chaenotheca stemonea* is included in the Italian Red List of epiphytic lichens, under the "Least Concern" category (Nascimbene et al. 2013).

S. Ravera, C. Cocozza

Cladonia macrophylla (Schaer.) Stenh. (Cladoniaceae)

– **TOS**. – Species to be excluded from the flora of Toscana.

Cladonia macrophylla is a an arctic-boreal species found only at high elevations in temperate Europe (Wirth et al. 2013), and occurring only in the Alps in Italy (Nimis et al. 2018). Nimis (1993) reported only a single record of this species from Toscana, originally published by Sambo (1927). However, Sambo (1927) reported «*Cladonia squamosa* var. *macrophylla* Rabenhorst», which is *Cladonia squamosa* Hoffm., and not

«*Cladonia alpicola* (Flot.) Vain.», the name used for *C. macrophylla* in the 1920s (see Ahti 1967). Therefore, *C. macrophylla* was never actually reported from Toscana. Furthermore, the record by Sambo (1927) should not even be referred to *C. squamosa*. No specimen by Sambo was found in FI (Munzi et al. 2019), albeit Sambo (1927) clearly stated that this species was identified by referring to a specimen collected by Emilio Rodegher and preserved in FI («*Cfr. hb. centr. Gen. Cladonia campione Val Brembana legit Rodegher*»). The only specimen found in FI and labelled as «*Cladonia squamosa* var. *macrophylla*» («*Valle Brembana (Bergamasco), Rodegher, Det. Dr. Jatta, ex herb. E. Baroni*») is a misidentified specimen of *Cladonia furcata* (Huds.) Schrad. subsp. *furcata*, showing many large squamules on podetia. Therefore, the record by Sambo (1927) should also probably be referred to a specimen of *C. furcata* with richly squamulose podetia.

G. Gheza, L. Di Nuzzo, J. Nascimbene

Halecania viridescens Coppins et P.James (Leprocaulaceae)

+ **ITALY** (**TAA**): Cavalese (Trento), on twig of *Fraxinus excelsior* L. (UTM WGS84: 32T 689644.5128933), 970 m, 13 December 2013, *J. Malíček* (Herb. Malíček no. 5342). – Species new for the flora of Italy (Trentino-Alto Adige).

Halecania viridescens is a crustose lichen with a fragile pale green to green-brown minutely warted-areolate thallus, dissolving into Pd+ orange-red soralia; few or absent gray to dark brown apotecia (to 0.4 mm broad). When sterile, it resembles *Scolicio-sporum sarothamni* (Vain.) Vězda, which usually does not form discrete soralia and is C+ reddish. However, both species are slightly variable and can occur in the same habitat, so that the Pd+ reaction of soralia in *H. viridescens* is an important diagnostic character. In temperate Europe, *Halecania viridescens* is widespread pioneer lichen in forests and agricultural landscape. It prefers slightly nitrophilous communities and smooth bark of young trunks, branches and twigs. This species is often associated with *Catillaria nigroclavata* (Nyl.) Schuler and *Candelariella efflorescens* agg. *sensu* Westberg and Clerc (2012). Due to its mainly sterile occurrence and small thalli, *Halecania viridescens* is an overlooked species and its real distribution and abundance are probably much larger than believed (Malíček et al. 2020).

J. Malíček

Lecanora marginata (Schaer.) Hertel & Rambold (Lecanoraceae)

+ **VEN:** Colle Cesta, near Vette Grandi Pass, Vette Feltrine, Dolomiti Bellunesi National Park (Belluno), on selciferous calcareous rocks (Formazione di Fonzaso) (UTM WGS84: 32T 719837.5107983), 2010 m, 12 July 2020, *J. Nascimbene* (Herb. Nascimbene JN6868). – Species confirmed for the flora of Veneto.

Lecanora marginata is a lichen with a crustose, continuous or rimose-areolate, yellowish to yellowish white thallus and lecideine apothecia shiny black, flat to convex, at first immersed, then subsessile. A thalline margin is present only in very young

apothecia and it is very soon excluded. The epithecium is typically green to dark blue-green or greenish black, reacting N+ red. The hymenium and the hypothecium are colourless. It is a circumpolar, arctic-alpine lichen, that in Italy is most frequent in the Alps (Nimis 2016), on limestone, dolomite, and on more or less calciferous siliceous rocks. The record reported here was collected on a selciferous carbonatic formation of the late Jurassic period. The last records from Veneto date back to the second half of the 19th century (Nimis 1993).

J. Nascimbene

Phylloblastia inexpectata Sérus., Coppins & Lücking (Verrucariaceae)

+ **CAL**: Bosco di Mavigliano, Montalto Uffugo (Cosenza), on cladodes of *Ruscus aculeatus* L. and *Hedera helix* L. leaves (UTM WGS84: 33S 604439.4360261), 223 m, 1 October 2020, *D. Puntillo* (CLU No. 17945, 17946). – Species new for the flora of Calabria.

Phylloblastia inexpectata is a foliicolous pyrenocarpous lichen species with Atlantic-Macaronesian distribution, also known from the British Isles and Madeira (Nimis 2016). In Italy, this species is known only for a warm-humid gorge located in Campania, where it was collected on *Buxus sempervirens* L. leaves (Sérusiaux et al. 2007). Its distribution is certainly underestimated, due to morphological characteristics. In fact, this species has an inconspicuous and very thin thallus, with a cortex formed by a single layer of cylindrical to irregular cells close to the perithecia, and very small flattened perithecia (0.1–0.15 mm in diameter). In the field, it is easily mistaken for a non-lichenized fungus. In the Mavigliano wood, we recorded a few others foliicolous species: *Fellhanera bouteillei* (Desm.) Vězda, *Porina hoehneliana* (Jaap) R.Sant., *Porina oxneri* R.Sant., *Bacidina vasakii* (Vězda) Vězda, and the lichenicolous fungus *Bryostigma muscigenum* (Th.Fr.) Frisch & G.Thor (Puntillo and Puntillo 2004).

D. Puntillo, M. Puntillo

Physcia dimidiata (Arnold) Nyl. (Physciaceae)

+ **SIC**: Roccafiorita (Messina), on limestone rocks at N-facing slope of a hill (UTM WGS84: 33S 523131.4198140), 880 m, 4 May 2012, *J. Malíček* (Herb. Malíček no. 6760). – Species new for the flora of Sicilia.

Physcia dimidiata is a narrow lobed foliose lichen, forming small irregular rosettes with overlapping lobes, crenulate and minutely lobulate at tips. It grows in rather rain-protected vertical and slight overhangs on epilithic substrates, as well as on artificial substrates and, occasionally, on basal parts of old trees with nutrient-rich, subneutral to moderately basic, often deeply cracked bark (Wirth et al. 2013). This lichen is a holarctic species with a Mediterranean to mild-temperate distribution in Europe, where it grows mostly below the montane belt (Nimis 2016).

J. Malíček, S. Ravera

Protoparmelia badia (Hoffm.) Hafellner (Parmeliaceae)

+ **VEN:** Colle Cesta, near Vette Grandi Pass, Vette Feltrine, Dolomiti Bellunesi National Park (Belluno), on selciferous calcareous rocks (Formazione di Fonzaso) (UTM WGS84: 32T 719837.5107983), 2010 m, 2 May 2000, *J. Nascimbene* (Herb. Nascimbene JN1318); Colle Cesta, near Vette Grandi Pass, Vette Feltrine, Dolomiti Bellunesi National Park (Belluno), on selciferous calcareous rocks (Formazione di Fonzaso) (UTM WGS84: 32T 719837.5107983), 2010 m, 12 July 2020, *J. Nascimbene* (Herb. Nascimbene JN6869). – Species confirmed for the flora of Veneto.

Protoparmelia badia is a crustose lichen with an olive-brown to gray-brown or dark brown rimose-areolate to warted thallus, chestnut brown to dark brown apothecia, at first immersed and later sessile, and one-celled (10–16 × 4–7 μm) spores with pointed apices. It is a heterogeneous species (Singh et al. 2015) with an Italian distribution mainly centered in the Alps (reaching the nival belt), where it is common on siliceous rocks. It is relatively rare in Mediterranean ranges (Nimis 2016). The records reported here were collected on nodules or flint layers included in a carbonatic, late Jurassic, formation that are typically colonized by silicicolous lichens (e.g., *Rhizocarpon geographicum* s.l.). The last records from Veneto date back to the second half of the 19th century (Nimis 1993).

J. Nascimbene

Pycnora sorophora (Vain.) Hafellner (Pycnoraceae)

+ **PIE**: Upper Valsesia, Rassa (Vercelli), ZPS "Alta Valsesia e Valli Otro, Vogna, Gronda, Artogna e Sorba", on old wooden fences not far from Torrente Gronda (UTM WGS84: 32T 423291.5068728), 960 m, 16 August 2020, *D. Isocrono* (Herbarium Isocrono). – Species new for the flora of Piemonte.

The genus *Pycnora*, formerly included in *Hypocenomyce* M.Choisy, was established in 2001 (Hafellner and Türk 2001) to separate crustose species with alectorialic acid and black pycnidia. Two of the four known species – *Pycnora sorophora* and *Pycnora praestabilis* (Nyl.) Hafellner – occur in Italy. *Pycnora sorophora* is a microlichen with areolate thallus and farinose yellowish brown soredia, often sterile, occurring on wood and on the bark of conifers. This species is widely distributed in boreal and temperate Europe but it is, so far, rarely reported in Italy only for eastern regions (Nimis 2016). It is included in the Italian Red List of epiphytic lichens as "Vulnerable" (Nascimbene et al. 2013).

D. Isocrono

Segestria leptalea (Durieu & Mont.) R.C.Harris (Porinaceae)

+ **TOS**: Forest of Vallombrosa, Reggello (Firenze), on bark of *Fagus sylvatica* L. (UTM WGS84: 32T 707245.4849025), 995 m, 23 June 2020, leg. *C. Cocozza, S. Ravera*, det.

S. Ravera (Herb. Ravera); Loc. Lago, Forest of Vallombrosa, Reggello (Firenze), on *Abies alba* Mill. (UTM WGS84: 32T 707000.4848230), 920 m, 7 October 2020, leg. *C. Cocozza, S. Ravera*, det. *S. Ravera* (Herb. Ravera). – Species new for the flora of Toscana.

Segestria leptalea is a crustose Pyrenocarpales, characterized by crowded brownish orange (not black, as more common in Pyrenocarpales) perithecia 0.1–0.3 mm across, partly immersed. In central Europe, it is typical for temperate beech forests, including mountain beech forests (J. Malíček pers. comm.). This species prefers old-growth forests, but it can occur also in managed ones, which are close to some old-growth forests. In Italy – where it is known only for Basilicata (Bartoli and Puntillo 1998) and Calabria (Puntillo and Vězda 1994, Puntillo 1995, 1996) – it usually grows on smooth bark of broadleaved trees, in moist forests and sometimes foliicolous on *Buxus sempervirens* L. (Nimis 2016). In the Forest of Vallombrosa, we found this lichen on bark of *F. sylvatica* L. and *Abies alba* Mill. in a mixed forest of beech and silver fir, with tree coverage greater than 60%, both on north and south-facing slopes, between 920 and 1050 m a.s.l.. *Segestria leptalea* is included in the Italian Red List of epiphytic lichens and classified as "Vulnerable" (Nascimbene et al. 2013).

S. Ravera, C. Cocozza

Sphaerophorus globosus (Huds.) Vain. (Sphaerophoraceae)

+ **CAM**: Ottati (Salerno), on *Fagus sylvatica* L. (UTM WGS84: 33T 527606.4485629), 1361 m, 28 June 2016, leg. *P. Hurtado, P. Giordani, E. Bianchi*, det. P. Giordani (Herb. Bianchi). – Species new for the flora of Campania.

Sphaerophorus globosus belongs to species complex with a very wide and disjunct distribution and a substantial morphological variability. It is a fruticose and shrubby lichen, forming small to large cushions (up to 15 cm across), irregularly branched, with rare terminal apothecia (Högnabba and Wedin 2003). *Sphaerophorus globosus* is generally restricted to cold-humid areas, mostly on rocks or as epiphyte, but occasionally grows over mossy outcrops in coastal forests at low and middle elevations. This species is extremely rare in Italy, and it is probably extinct in several Regions (Nimis 2016). Due to its rarity, it is included in the Italian Red List of epiphytic lichens under the "Vulnerable" category (Nascimbene et al. 2013). The record reported here refers to a fairly large population, colonizing a dozen large beech trees in an undisturbed open stand, within the epiphytic communities of the *Lobarion pulmonariae*.

P. Hurtado, P. Giordani, E. Bianchi

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Supplementary material 1

Figure S1

Authors: Giulio Pandeli

Data type: JPG image

Explanation note: *Tortella mediterranea* Köckinger, Lüth, O.Werner & Ros – A Plant. B Leaf C Shoot habit, dry D Shoot habit, moist E Stem cross-section F Leaf cross-section G Leaf margin at mid-limb with elongated marginal cells. Photographs by G. Pandeli.

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